



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/581,782

03/15/2007

Woei Wan Tan

57855/C982

5509

23363 7590 04/21/2008
CHRISTIE, PARKER & HALE, LLP
PO BOX 7068
PASADENA, CA 91109-7068

EXAMINER

PATEL, PUNAM

ART UNIT

PAPER NUMBER

2855

MAIL DATE

DELIVERY MODE

04/21/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/581,782	TAN ET AL.	
	Examiner	Art Unit	
	PUNAM PATEL	2855	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 June 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 June 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/10/2006</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Information Disclosure Statement

The information disclosure statement filed 08/10/2006 fails to comply with the provisions of 37 CFR 1.97, 1.98 and MPEP § 609 because two entire books have been referenced, however only the table of contents for each book have been provided. The text of the books which the applicant considers relevant for this application has not been provided. It has been placed in the application file, but the information referred to therein (the text of two entire handbooks) has not been considered as to the merits. Applicant is advised that the date of any re-submission of any item of information contained in this information disclosure statement or the submission of any missing element(s) will be the date of submission for purposes of determining compliance with the requirements based on the time of filing the statement, including all certification requirements for statements under 37 CFR 1.97(e). See MPEP § 609.05(a).

Drawings

The drawings are objected to because the key for Figure 12 indicates solid black as being both the nitride and the metal materials.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "support structure" of claim 1 & "contact member" of claim 2 must be shown/clearly identified or the feature(s) canceled from the claim(s). No new matter should be entered.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference characters "102" and "1210" have both been used to designate the diaphragm.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 3, 4, and 13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

With respect to Claims 3 and 13:

The disclosure teaches the contact member being operable to cause the deflection of the cantilever member when the diaphragm is deflected and being operable to move relative to the cantilever. See Specification, page 2: 30-35. The “contact member” has not been assigned a reference number, nor has a structure been clearly identified as the “contact member” in the drawings. The “boss structure” (Fig. 1) best fits the written description provided, and will be understood to be the claimed “contact member.”

Accordingly, the disclosure fails to teach the boss structure/contact member being disposed on the base member/substrate. Rather it is a component of the diaphragm and is situated above the cantilever to cause a deflection in the cantilever (Fig. 1). Thus the limitations of Claim 3 are not supported by the disclosure. For the purposes of examination the contact member will be read as being disposed on the diaphragm (also see Claim 5).

Furthermore the disclosure fails to teach the boss structure/contact member comprising a nitride material. What purpose/function would nitride material disposed on the contact member serve? Thus the limitations of Claim 13 are not supported by the disclosure.

No art rejection is applicable at this time for claim 13 due to the unclear nature of the claim.

With respect for Claim 4:

The disclosure teaches the support structure being operable to support the cantilever (Specification, page 2: 25) and being disposed on the base member (Specification, page 3: 6-7). The “support structure” has not been assigned a reference number, nor has a structure been clearly identified as the “support structure” in the drawings. The “post” (Fig. 1) best fits the written description provided, and will be understood to be the claimed “support structure.”

Accordingly, the disclosure fails to teach the post/support structure being disposed on the diaphragm member. Rather it is a component of the base member and is situated below the cantilever to provide support for the cantilever (Fig. 1). Thus the limitations of Claim 4 are not supported by the disclosure. For the purposes of examination the support structure will be read as being disposed on the base member.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-12 and 14-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Gianchandani (US 6,460,234).

With respect to Claims 1-12 and 14-19, Gianchandani teaches a capacitive type sensor/sensing method (Fig. 25) comprising:

- a base member (Col. 5: 56-59, #31, the glass substrate);
- a diaphragm member deflectable under an external pressure (#93);
- a cantilever member (#92) disposed between the base member and the diaphragm member and supported on a support structure (#90, 91);
- a contact member (the portion of the diaphragm contacting the cantilever) disposed on the diaphragm member;
- wherein the base member and the cantilever member form a capacitor structure of the device (Col. 7: 28-40, #s 92 and 39); and
- wherein the deflection of the diaphragm member/contact member beyond a threshold value causes the cantilever member to deflect to cause a capacitive change in the capacitor structure (Col. 7: 28-40). It is understood that all of the structures have been “formed”.

With respect to Claims 9 and 10, Gianchandani teaches the diaphragm and cantilever member comprising polysilicon (Col. 7: 28-40).

With respect to Claims 11 and 19, Gianchandani teaches that the substrate maybe a traditional material such as silicon and maybe etched according to standard semiconductor processing techniques (Col. 5: 27-41).

With respect to Claims 16 and 17, Gianchandani teaches forming the structures using surface etching and deposition techniques (metallization for forming the electrodes). See Col. 5: 27 – Col. 6: 61.

Claims 1-6, 14, 15, and 18 rejected under 35 U.S.C. 102(e) as being anticipated by Hsu et al. (US 6,604,425).

With respect to Claims 1-6, 14, 15, and 18, Hsu et al. teach a capacitive type sensor/sensing method comprising:

- a base member (#4, the substrate);
- a diaphragm member deflectable under an external pressure (#6);
- a cantilever member (#14) disposed between the base member and the diaphragm member and supported on a support structure (Fig. 8a, the point of attachment to the substrate & col. 6: 37-39);
- a contact member (#16) disposed on the diaphragm member;

wherein the base member and the cantilever member form a capacitor structure of the device (Col. 6: 34-48); and

wherein the deflection of the diaphragm member/contact member beyond a threshold value causes the cantilever member to deflect to cause a capacitive change in the capacitor structure (Col. 6: 34-64 & Fig. 5b). It is understood that all of the structures have been “formed”.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Frick et al. (US 4,944,187) teaches a capacitance based pressure sensor which utilizes a cantilever structure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PUNAM PATEL whose telephone number is (571)272-6794. The examiner can normally be reached on Monday to Friday 9:30 AM to 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Edward Lefkowitz/
Supervisory Patent Examiner, Art Unit 2855

PP
04/17/2008

Application/Control Number: 10/581,782
Art Unit: 2855

Page 9